

**AN ANNOTATED LIST OF INSECTS FOUND IN THE
BARK AND WOOD OF ULMUS AMERICANA
L. IN NEW YORK STATE.***

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In the course of work on the Dutch Elm Disease conducted by the Departments of Entomology and Plant Pathology at Cornell University, it was thought advisable to make a rather complete study of the various species of insects found in elm with especial reference to their potential ability to transmit the organism of the Dutch Elm Disease.

This work was begun in 1934 by Dr. P. A. Readio and has continued under his direction and later that of Dr. D. L. Collins until the present time. Mr. Henry Dietrich and Mr. C. H. Martin have also made numerous observations on elm insects. This paper is, therefore, more or less a compilation of observations made by all members of the Dutch Elm Disease Investigation staff, and all should receive equal credit.

In addition to field collections many samples of elm wood were collected both within and without the Dutch Elm Disease area. These samples were caged and a record kept of all emergence from each sample. In this way much ecological and biological information was obtained, only a small portion of which is included in the following list. All records of species from elm in this paper are based on observations made during the course of the work.

In a project of this sort involving a large number of different groups of insects, the cooperation of specialists in the various groups is of primary importance. Without exception this cooperation was willingly given. Special acknowledgment is due Mr. C. F. W. Muesebeck and Mr. Henry Townes who determined the Ichneumonoidea, and to Mr. A. B. Gahan who determined the Chalcidoidea, to Dr. W. T. M. Forbes who determined the Lepidoptera, and to Dr. C. H. Curran who determined most of the Diptera. Acknowledgment to the many other specialists who identified specimens is given throughout the list.

Most of the laboratory work involved was done at the Boyce Thompson Institute for Plant Research at Yonkers, N. Y., and all cooperation received from that institution is greatly appreciated.

All species not given as members of the insect fauna of New

* Abstract of a thesis submitted as a partial requirement for the degree of Master of Science.

York State in "A List of the Insects of New York" (Leonard, Cornell Mem. 101, 1928) are indicated by an asterisk (*).

COLEOPTERA.

(All Coleoptera determined by Mr. Henry Dietrich unless otherwise noted.)

STAPHYLINIDAE.

PAEDERINAE.

Members of this subfamily are frequently encountered under the moist decaying bark of dead elms.

TACHYPORINAE.

Conosoma opicus (Say). This species is fairly common under moist bark.

Conosoma crassus (Grav.). This species is found in the same situations as *C. opicus*, but is usually less common.

HISTERIDAE.

HISTRINAE.

Platysoma depressum Lec. Found under moist bark.

Platysoma coarctatum Lec. A very common species under elm bark where it is usually associated with *Saperda tridentata* or various Scolytids. Usually it is found in the well-developed larval galleries of wood-boring insects, but it has occasionally been noted in the fresh maternal tunnels of entering *Hylurgopinus rufipes*.

Paromalus aequalis Say. Under the moist bark of dead elms.

Isomalus bistriatus Er. Under the moist bark of dead elms.

MELYDRIDAE.

MALACHIINAE.

Attalus sp. One specimen from a small dry branch of a dying elm.

CLERIDAE.

CLERINAE.

Enoclerus nigripes Say. A common predator of *Hylurgopinus rufipes*. The adults frequent elm logs where they prey on entering or emerging *H. rufipes*, and the larvae feed on the larvae and pupae of that species. The life cycle corresponds to that of *H. rufipes*, and it is doubtless of great importance in keeping that species in check.

Hydnocera unifasciata Say. Much less common than *E. nigripes*, but of similar habits.

PYROCHROIDAE.

Dendroides bicolor Newm. The larvae of this species are quite abundant under the moist bark of dead and decaying elms. The adult beetles, however, oviposit in freshly cut wood.

ELATERIDAE.

PYROPHORINAE.

Alaus oculatus (L.). The larvae of this beetle are occasionally found in decaying elm logs. It is probably predacious on associated insects. The larvae of *Alobates pennsylvanica* and *Synchroa punctata* are frequently found with it.

BUPRESTIDAE.

Dicerca divaricata (Say). One specimen was reared from a dead elm branch.

Anthaxia viridicornis (Say). A rather common borer in the smaller branches of elm. In most cases this species was in association with *A. viridifrons* Gory. These two so-called species were on several occasions found mating and, therefore, all records are grouped under Say's species.

Chrysobothris femorata (Oliv.). The larvae of this species were fairly common in freshly cut elm logs in several localities.

OSTOMIDAE.

Tenebroides bimaculatus (Melsh.). Occasionally found under bark.

Tenebroides corticalis (Melsh.). Common under elm bark, both freshly cut and well decayed. Both adults and larvae are probably predators of wood-boring insects.

CUCUJIDAE.

Silvanus bidentatus (Fab.). A few specimens under the moist bark of a dead elm.

Silvanus imbellis Lec. Under bark of an elm log.

Cucujus clavipes Fab. Adults and larvae of this species are frequently quite abundant under the bark of dead and dying elms.

Laemophloeus fasciatus Melsh. Found in small numbers under elm bark.

Laemophloeus liquidus Csy. Very common under decaying elm bark. It is occasionally found in the tunnels of bark beetles in recently killed wood.

COLYDIIDAE.

Synchita fuliginosa Melsh. One specimen reared from an elm log. Yonkers, N. Y., July 30, 1935.

Eucicones marginalis (Melsh.). One specimen reared from an elm log. Pelham Bay Park, N. Y. City, June 30, 1936.

Bothrioderes geminatus (Say). One specimen under elm bark. Tarrytown, N. Y., August 8, 1936.

TENEBRIONIDAE.

DIAPERINAE.

Diaperis maculata Oliv. Adults of this species were found under the bark of a dead elm at Ithaca, N. Y.

TENEBRIONINAE.

Alobates pennsylvanica (DeG.). Adults are frequently found under the bark of dead elms; the larvae are found in similar situations and in well-decayed wood.

STRONGYLINAE.

Strongylium tenuicolle Say. One specimen was reared from an elm log. Yonkers, N. Y., July 20, 1935.

MELANDRYIDAE.

Synchroa punctata. Newn. Common in dead elm in which the bark is still in close contact with the wood. The adults usually oviposit in the living wood of dying trees or in freshly cut wood, but the wood is invariably well decayed by the time the larvae are full grown. The larvae are apparently scavengers.

ANOBIIDAE.

ANOBIINAE.

Ptilinus ruficornis Say. Reared in considerable numbers from a dead branch of a living elm.

CERAMBYCIDAE.

PRIONINAE.

Parandra brunnea (Fab.). The larvae of this species are occasionally found in elm.

CERAMBYCINAE.

Physocnemum brevilineum (Say). Occasionally reared from elm logs collected in various localities.

Xylotrechus colonus (Fab.). Fairly common in weakened elms.

The tunnels are largely in the bark, scarcely scoring the wood. All emergence took place in early June.

Neoclytus acuminatus (Fab.). A common insect in weakened trees and freshly cut elm wood. It sometimes bores between the bark and wood, but more frequently its tunnels penetrate deeply into the wood.

Anthoboscus ruricola (Oliv.). Observed ovipositing on elm logs in May at Patterson, N. Y. (C. H. Martin.)

LAMIINAE.

Psapharochrus quadrigibbus (Say). Observed ovipositing on elm logs at Patterson, N. Y. (C. H. Martin.)

Astylopsis macula (Say). A few specimens were reared from elm logs.

Leiopus variegatus (Hald.). A few specimens were reared from elm in May and June, 1935.

Graphisurus fasciata (DeG.). One specimen reared from an elm log. Tarrytown, N. Y., Sept. 16, 1936.

Saperda tridentata Oliv. One of the most abundant of all elm insects. Although the adults are not commonly met with in the field, all dying trees examined contained large numbers of *S. tridentata* larvae. Some members of a single brood of this species complete their life cycle in one year while other members of the same brood take two and possibly three years to complete their development. Many parasites were reared in association with *S. tridentata*.

Oberea tripunctata (Swed.). Larvae of this species were found boring on two occasions in the small twigs of elm, causing the tip to break over and the leaves to wither.

CURCULIONIDAE.

CURCULIONINAE.

Magdalis pandura Say. Emerged in small numbers from elm wood collected at Crugers, N. Y. Emergence took place during the last week in May.

Magdalis barbata Say. Rather common in smaller elm branches, but is occasionally found in the larger branches or even in the trunk. It is frequently found in association with *M. armicollis*.

Magdalis armicollis Say. This species is more common than *M. barbata* and sometimes does considerable damage to elms. Most of the emergence takes place in June, but occasional specimens are found throughout the summer. The males of this species are frequently completely black and difficult to distinguish from *M. barbata*.

Conotrachelus anaglypticus (Say). Occasionally found on the foliage and branches of elm. The larvae mine in the cambium around the edges of wounds.

Cryptorhynchus obtentus (Hbst.). A few specimens of this species were reared from elm branches.

COSSONINAE.

Acamptus rigidus Lec. One specimen of this strange Cossonid emerged on June 5, 1936, from elm wood collected at Crown Point, N. Y.

Cossonus impressifrons Boh. Under the bark of a dead elm at Yonkers, N. Y.

Pentarthrinus parvicollis Csy. This species was quite numerous in a dead elm stub collected at Tuckahoe, N. Y., September 2, 1936.

Stenoscelis brevis (Boh.). This species is quite common in dead elms through which it tunnels in all directions.

SCOLYTIDAE.

SCOLYTINAE.

* *Scolytus multistriatus* (Marsh.). This imported species is abundant in the New York City area and for a considerable distance up the Hudson River Valley. Its habit of feeding in the twig crotches of healthy elms makes it of primary importance in the dissemination of the Dutch Elm Disease organism. It prefers to breed in weakened or recently cut elms.

Scolytus sulcatus Lec. This species was formerly thought to be very rare, but it has been reared from elm in many localities in New York State. It is, however, not a common insect. Like *S. multistriatus* it also feeds in twig crotches, and is, therefore, of potential importance in the spread of the Dutch Elm Disease organism.

HYLESININAE.

Hylurgopinus rufipes (Eich.). This species is quite common in New York State wherever elms are found. It prefers to breed in dead trees, the dead and dying portions of living trees, and in felled wood that has been cut some time.

IPINAE.

Monarthrum mali (Fitch). This species was found entering elm logs in large numbers at Patterson, N. Y., on May 8, 1936. (C. H. Martin.)

Xyloterinus politus (Say). Found boring in elm at Varna, N. Y., on September 29, 1936. (H. Dietrich.)

Anisandrus minor Sw. This species is quite common in elm logs. It seems to prefer rather freshly cut wood.

HYMENOPTERA.

XIPHYDRIIDAE.

Xiphydria sp. This species, which is probably *X. tibialis* Say, was reared in moderate numbers from elm collected in various parts of New York State. The larvae bore through the solid wood of dead and dying trees.

Xiphydria hicoriae Roh. (Det. D. Ries.) This borer was fairly common in elm collected at Haverstraw and Nyack, N. Y. Its habits in boring are similar to the preceding species. Emergence took place during the last of July and the first of August.

SIRICIDAE.

TREMICINAE.

Tremex columba L. This species has been reared from elm and has been observed on several occasions ovipositing in large numbers on dying elms.

TENTHREDINIDAE.

ALLANTINAE.

Sawfly larvae of this subfamily were collected about one centimeter beneath the surface of a dead elm branch. Dr. H. H. Ross in correspondence states that the larvae of this subfamily feed on herbaceous plants and when full grown bore into twigs, bark, apples, etc.

Strongylogastroidea uncinata (Nort.). (Det. W. Middlekauff.) One specimen from an elm log.

SELANDRIINAE.

Strongylogaster politus Cress. (Det. W. Middlekauff.) Two specimens were reared from elm wood, May 3 and 5, 1936. This species feeds on the fern *Pteris aquilina*, but it has also been reared from the pith of elder and sumach.

BRACONIDAE.

COENOCOELIINAE.

Coenocoelius saperdae (Ashm.). (Det. Townes.) This species is a very common parasite of *Saperda tridentata* and was reared in large numbers. It emerged throughout the season but was most common in June and July. Mr. Townes states that the specimen of *Coenocoelius rugosus* Prov. recorded as a parasite of *S. tridentata*

in the list of New York insects (Leonard, 1928) is also *C. saperdae*.

Coenocoelius erythrogaster (Roh). (Det. Muesebeck as *Capitonius erythrogastra*.) One specimen of this insect was reared from elm. Yonkers. N. Y., June 23, 1936.

VIPINAE.

* *Atanycolus ulmicola* Vier. (Det. Muesebeck.) This insect is also a common parasite of *S. tridentata* although less common than *C. saperdae*. It appeared in numbers in the spring and fall, but is only rarely seen in midsummer.

SPATHIINAE.

Spathius canadensis Ashm. (Det. Muesebeck.) This species was the most abundant of all parasites reared from elm. It was reared as a parasite of *Hylurgopinus rufipes*, *Magdalis barbata*, and *Magdalis arnicollis*. It probably also attacks *Scolytus multistriatus* and possibly *Saperda tridentata*.

Spathius sp. One specimen from elm, Yonkers, N. Y., May 29, 1935.

HORMIINAE.

* *Heterospilus* n. sp. (Det. Muesebeck.) The larvae of this species are external parasites of *Saperda tridentata*. The adults appeared in fair numbers during the last of August and the first of September.

SIGALPHINAE.

Triaspis curculionis (Fitch). (Det. Muesebeck.) One specimen of this insect was reared from elm wood.

Chelonus sp. A few specimens were reared from elm.

MICROGASTERINAE.

Apanteles sp. 1. One specimen from elm.

Apanteles sp. 2. One specimen from elm. Both this and the preceding were probably parasitic on a Lepidopterous bark feeder.

BLACINAE.

Eubazidon magdali (Cress.). (Det. Muesebeck.) A common parasite of *Magdalis barbata* and *M. arnicollis*. Its emergence like that of its hosts is in the spring, but occasional specimens are found throughout the summer and fall.

Eubadison sp. (Det. Muesebeck.) Occasional specimens were reared from elm at various times.

HELCONINAE.

Helconidea albitarsis (Cress.). (Det. Townes.) Several specimens of this parasite emerged from elm wood in May.

ALYSIINAE.

* *Synaldis* sp. (Det. Muesebeck.) One specimen from elm.

ICHNEUMONIDAE.

CRYPTINAE.

* *Chaeretymma* sp. (Det. F. D. DeGant.) One specimen reared from elm wood on May 20, 1936. Mr. DeGant states that this may be the male of *C. kennedyi* DeGant MS.

* *Chaeretymma* n. sp. One specimen of this new species, which is to be described by Mr. DeGant, was reared from elm wood on May 27, 1936.

* *Chaeretymma zingara* DeGant MS. (Det. F. D. DeGant.) One specimen of this species was found dead in the larval tunnel of *Dicerca divaricata* in elm at Mt. Ivy, New York. Another specimen of *Chaeretymma* was found with *C. zingara*, but was so mutilated that identification was impossible.

ICHNEUMONINAE.

Asphragis sp. (Det. R. A. Cushman.)

Theronia fulvescens (Cress.). (Det. Townes.) One specimen from elm, Yonkers, N. Y., May 31, 1935. It was not determined on what insect this species was parasitic.

Megarhyssa sp. Larvae of this genus were collected parasitizing *Tremex columba* in elm. (Radio and Dietrich.)

Xorides albopictus (Cress.). (Det. Townes.) A fairly common parasite of *Saperda tridentata*. Most of its emergence is in May and June.

* *Xorides calidus* Prov. (Det. Townes.) A few specimens of this species were reared from elm.

Deuteroxorides caryae (Harr.). (Det. Townes.) A few specimens of this species emerged the last week in August and the first week in September. It is apparently parasitic on *Saperda tridentata*.

Odontomerus vicinus Cress. (Det. Townes.) One specimen of this species was found to be parasitic on *Dicerca divaricata* in elm.

OPHIONINAE.

* *Trichomma reticulatum* Davis. (Det. Cushman.) One specimen was reared from elm, Yonkers, N. Y., May 8, 1935.

CYNIPIDAE.

IBALIINAE.

Ibalia maculipennis Hald. This unusual insect was observed in numbers ovipositing in elm infested with *Tremex columba* and other elm borers on June 28, 1935. (Radio and Dietrich.)

CHALCIDAE.

* *Trigonura* n. sp. (Det. Gahan.) This species is apparently parasitic on *Magdalis barbata* and *M. armicollis* as it was reared in large numbers from wood containing only those insects. Most of the emergence was in May and June.

* *Trigonura* n. sp. (Det. Gahan.) A single specimen of a new species of *Trigonura* different from the preceding was reared from elm wood collected at Crown Point, N. Y. It emerged June 5, 1936.

EURYTOMIDAE.

* *Eurytoma abnorme* Ash. (Det. Gahan.) Occasional specimens of this species were reared from elm throughout the seasons of 1935 and 1936.

* *Prodecatoma* n. sp. (Det. Gahan.) Three specimens of this species were bred from elm wood collected at Tarrytown, N. Y. Emergence was on August 12, August 15, and September 8, 1936.

EULOPHIDAE.

* *Entedon leucogramma* (Ratz.). (Det. Gahan.) This European species was occasionally reared from elm collected in various parts of Westchester County both in 1935 and 1936. Emergence began in July, but most of the specimens appeared in September. This species has been recorded as parasitic on various Scolytids in Europe.

EUPELMIDAE.

* *Eupelmus juglandis* Ashm. (Det. Gahan.) A few specimens of this species were reared from elm wood containing *Magdalis* spp. Emergence was in July from wood collected at Ithaca and North Petersburg, N. Y.

* *Eupelmus cyaniceps* var. *amicus* Girault. (Det. Gahan.) A few specimens of this insect were reared from elm wood.

PTEROMALIDAE.

* *Cheiropachus colon* L. (Det. Gahan.) Specimens of this species were occasionally reared from elm. It is apparently parasitic on *Scolytus multistriatus*.

CHRYSIDIDAE.

Omalus corruscans (Nort.). (Det. W. G. Bodenst.) One specimen was reared from elm collected at Ithaca, N. Y.

FORMICIDAE.

FORMICINAE.

* *Camponotus fallax* Nylander. (Det. Townes.) A colony of this ant was found in a dead elm stub at Tuckahoe, N. Y., September 2, 1936.

Camponotus herculeanus (L.) subsp. *pennsylvanicus* DeG. This species is frequently found in dead and dying elms.

SPHECIDAE.

OXYBELINAE.

Solenius producticollis Pck. (Det. K. V. Krombein.) One specimen from an elm log.

ANDRENIDAE.

* *Halictus macoupinensis* Robt. (Det. G. A. Sandhouse.) One specimen from a dead elm stump.

MEGACHILIDAE.

Megachile sp. A nest of this bee was found in a dead elm at Tarrytown, N. Y.

DIPTERA.

TIPULIDAE.

Tipula penobscot Alex. (Det. Townes.) One specimen of this crane-fly was reared from the trunk of a dead elm.

CECIDOMYIIDAE.

Several, as yet undetermined, specimens of this family were reared from elm logs.

MYCETOPHILIDAE.

(Det. E. Fisher.)

Leia bivittata Say. Reared in large numbers.

SCIARIDAE.

(Det. E. Fisher.)

Sciara coprophila Lint. Reared in large numbers.

Sciara fenestralis Zett. (*S. pauciseta* Felt.) Reared in small numbers.

* *Sciara* n. sp. (Near *S. ocellaris* Cmstk.). Two male specimens from Yonkers, N. Y.

STRATIOMYIIDAE.

(Det. Curran.)

Neopachygaster maculicornis Hine. Occasional specimens of this insect were reared from wood collected in various localities. It apparently breeds in moist bark.

COENOMYIIDAE.

Xylophagus lugens Lw. The larva of this fly was occasionally found under the moist bark of dead elms.

ASILIDAE.

Bombomima sp. Many pupal cases of this fly were found projecting from a dead area in a living elm at Mt. Vernon, N. Y.

DOLICHOPODIDAE.

(Det. Curran.)

* *Medeterus ciliata* V. D. Numerous specimens of this species were reared from material collected in various parts of Westchester and Rockland Counties, New York City, and Ithaca, N. Y. Except for the Ithaca specimens, it was always in association with *Scolytus multistriatus*. Other members of this genus have been recorded in the larval state as important predators of bark beetles.

Dolichopus ramifer Lw. One specimen was reared from elm bark.

ANTHOMYIIDAE.

Larvae of this family are often found under bark along the edges of wounds.

LONCHAEIDAE.

(Det. Curran.)

Lonchaea polita Say. Reared rather abundantly from elm logs, and usually in association with bark beetles. It is probably a facultative parasite of Scolytids, although usually acting as a scavenger.

OTITIDAE.

* *Euxesta* n. sp. (To be named by Dr. Curran.) A few specimens of this insect were reared from wood collected in New York City and Westchester County. This species was also observed feeding on sap issuing from *Scolytus multistriatus* entrance holes.

CHLOROPIDAE.

(Det. Curran.)

* *Gaurax apicalis* Mall. Reared from moist elm bark.

* *Gaurax montanus* Coq. Reared from moist elm bark.

AGROMYZIDAE.

(Det. Curran.)

Odinia maculata Meig. This species was reared fairly abundantly from elm logs collected in Rockland County. Most of the emergence was in May.

LEPIDOPTERA.

(Determinations by Dr. W. T. M. Forbes unless otherwise noted.)

TINEIDAE.

* *Oene hybromella* Chambers. Several specimens of this moth were bred from wood collected at Armonk, N. Y. Specimens emerged from June 17 until July 3, 1936.

OECOPHORIDAE.

Schiffermuelleria argenticinctella Clem. (Det. Forbes and J. F. G. Clarke.) This beautiful little moth emerged from wood collected in various parts of New York State. Emergence took place from the last week in May until the first week in July.

LAVERNIDAE.

Perimede erransella Cham. This moth was quite abundant in wood collected in many localities. Emergence took place from June 10 until July 5, 1936.

COSSIDAE.

Zeuzera pyrina L. This borer was found to be fairly abundant in elms in the New York City area.

HEMIPTERA.

ANTHOCORIDAE.

Orius insidiosus Say. (Det. Readio.) Several specimens of this small predacious bug were found under the bark of a dead elm at Yonkers, N. Y.

MIRIDAE.

* *Fulvius imbecilus* (Say). (Det. Townes.) One specimen of

this insect was found beneath the bark of a dead elm at Yonkers, N. Y., on September 11, 1936.

ISOPTERA.

TERMITIDAE.

Reticulitermes flavipes Kollar. The bases of dead and dying elms were occasionally found to be infested with this insect.

CORRODENTIA.

(Determined by Dr. P. J. Chapman.)

Corrodentia are frequently found in elm bark especially that of dying or dead trees. They probably feed on the fungi which grow under such conditions.

PSOCIDAE.

Psocus moestus Hag.

Psocus slossonae Bks.

CAECILIIDAE.

Peripsocus madidus Hag.

LEPIDOPSOCIDAE.

Echmepteryx hageni Pck.

THYSANOPTERA.

Thrips are occasionally met with under elm bark. Eggs, nymphs, and adults of one species were quite abundant in pupal cells of *Magdalis armicollis* from which the adult had emerged.

Dear Reader.—How about that little note to fit this space.—
Yours, Ye Ed.